

33. The liquid-crystal medium of claim 17, wherein the threshold voltage measured at 20 °C and $d \cdot \Delta n$ of 0.50 μm is 1.7 V or less.

B3
cont.
34. The liquid-crystal medium of claim 17, wherein the threshold voltage measured at 20 °C and $d \cdot \Delta n$ of 0.50 μm is 1.5 V or less. —.

REMARKS

The Amendments

Claim 11 is amended as to the definition of X and claim 12 is amended consistent therewith. Claim 20 is amended to bodily incorporate the definitions of the variables rather than by referring to claim 11. Support for new claims 26-34 is found in the specification in the Table on page 21 and in the paragraph bridging pages 23-24, for example.

The amendments do not narrow the scope of the claims and/or were not made for reasons related to patentability. The amendments should not be interpreted as an acquiescence to any objection or rejection made in this application. To the extent that the amendments avoid the prior art, competitors are warned that the amendments are not intended to and do not limit the scope of equivalents which may be asserted on subject matter outside the literal scope of any patented claims but not anticipated or rendered obvious by the prior art. Applicants reserve the right to file one or more continuing and/or divisional applications directed to any subject matter disclosed in the application which has been canceled by any of the above amendments.

The Claim Objections

The objection to claim 20 is believed to be rendered moot by the above amendment.

The objection to claims 14 and 21 is believed to be in error. Claim 11 (and claim 12 dependent thereon) recites component c), and thus the compounds of formula (III), as an optional component. Claims 14 and 21 require a compound of formula (III) and, thus, do further limit claims 11 and 12 from which they depend. It is urged that the objection be withdrawn.

The Rejections under 35 U.S.C. §102 and 35 U.S.C. §103

The rejections of claims 11-25 under 35 U.S.C. §102, as anticipated, or under 35 U.S.C. §103, as being obvious over DE 19521483 in view of WO 9621881 are respectfully traversed.

The compounds of formula I of the reference generically encompass the dielectrically positive compounds of applicants' formula I, the compounds of formula II of the reference generically encompass the dielectrically negative compounds of applicants' formula II and the compounds of formula III of the reference generically encompass the dielectrically neutral compounds of applicants' formula III. However, the reference discloses no actual specific compounds which meet the recitations of applicants' formula (I). Let alone compounds of each of these formulae in a single medium. See, for example, the proviso as to formula (I) that where X is F, Y is F (thus, giving a tri-fluorinated terminal benzene ring). Accordingly, for example, the compounds BCH-3F.F and BCH-5F.F do not fall within applicants' formula (I) because they only have a difluorinated terminal benzene ring and the compounds of CCP-3OCF₂.F.F do not fall within applicants' formula because X is -OCF₂H, which no longer within the definition of X.

In the absence of any specific example or any other specific description of a medium containing a compound meeting the recitations of applicants' formula (I), there can be no anticipation of the instant claims. A reference which provides a mere broad generic disclosure

without any specific direction as to the specific element necessary to provide an anticipation is not an anticipatory disclosure. In other words, such a broad generic disclosure does not "describe" an embodiment therein in accordance with 35 U.S.C. §102. See In re Kollman et al, 201 USPQ 193 (CCPA 1979). If such a reference were anticipatory, it would not be possible to prove nonobviousness for selection inventions within a generic disclosure. Such is not the state of the law. For this reason, at least, the rejection under 35 U.S.C. §102 should be withdrawn. At least some of the claims reciting certain properties of the liquid crystal media are further distinguished from DE '483 by failure of the reference to describe any specific embodiment of a medium having such property, see, e.g., new claims 27, 28, 30, 31, 33 and 34.

Despite the generic disclosure of DE '483, it is urged that the reference does not render the claimed invention obvious. The secondary WO reference only relates to claim 19 and does not cure the deficiencies of DE '483 discussed as follows.

First, a generically encompassing disclosure does not necessarily give rise to a prima facie case of obviousness; see, e.g., In re Jones, 21 USPQ 2d 1941 (Fed. Cir. 1992); and In re Baird, 29 USPQ2d 1550 (Fed. Cir. 1994).

Second, applicants submit that the claimed media provide advantageous results due to the selection of certain compounds only generically within the reference teachings and that the reference provides no expectation that the selection of such certain compounds would provide such advantage. It should be noted that all of the Examples in applicants' specification (except the comparative ones) contain compounds with a tri-fluorinated terminal benzene ring, i.e., the F.F.F - ending compounds or the CCZU and/or CDU compounds. To the contrary, none of the DE '483 exemplified mixtures contain such compounds nor do the comparative examples of

applicants' specification. As a result, the media of applicants' invention exhibit threshold voltages below 2.0 V, preferably even lower, while the prior art media generally exhibit higher threshold voltages, i.e., from 2.0 to 2.5 V for examples 1-13. Although, Example 14 of the reference shows a threshold voltage of 1.95 V, it contains no compound of applicants' formula (I). Regardless, the data considered as a whole demonstrate that applicants' invention provides a surprising result of lower threshold voltage which is of significant advantage in allowing provision of displays operable at lower voltage. See the disclosure at page 2, first paragraph; page 4, lines 23-25; and page 20, lines 21-26; of applicants' specification disclosing this advantage and its significance. The cited prior art provides no recognition of such advantages since it gives no direction to one of ordinary skill in the art to select compounds meeting applicants' formula (I) from its generic disclosure and certainly provides no indication that such compounds would be useful to provide media with an advantageous threshold voltage. To the contrary, the reference suggests using other compounds not within applicants' formula (I).

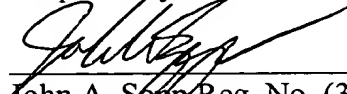
Applicants' media are also advantageous in dielectric properties and viscosity properties.

It is urged that the above-discussed unexpected advantages of applicants' invention provide clear and convincing evidence of the nonobviousness of applicants' invention. Thus, the rejection under 35 U.S.C. §103 should be withdrawn for this reason also.

It is submitted that the claims are in condition for allowance. However, the Examiner is kindly invited to contact the undersigned to discuss any unresolved matters.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



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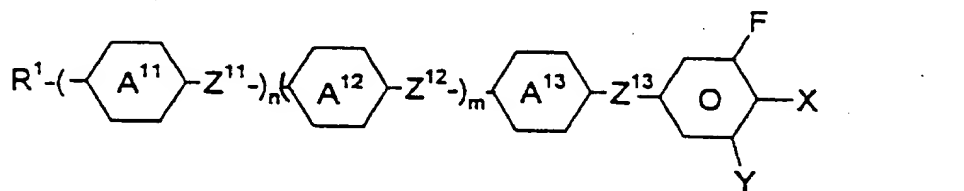
VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

Please amend claims 11, 12 and 20 to read as follows (a marked up version of the amended claims is in an appendix attached hereto):

11. (Amended) A nematic liquid-crystal medium, comprising

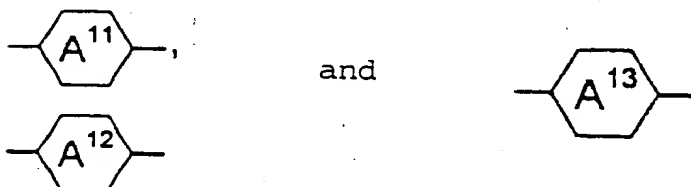
a) one or more dielectrically positive compound(s) of the formula I



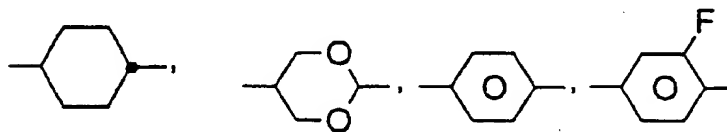
in which

R^1 is alkyl or alkoxy having 1 to 7 carbon atoms, alkoxyalkyl, alkenyl or alkenyloxy having 2 to 7 carbon atoms,

Z^{11} , Z^{12} and Z^{13} are each, independently of one another, $-\text{CH}_2-\text{CH}_2-$, $-\text{CH}=\text{CH}-$, $-\text{C}\equiv\text{C}-$, $-\text{COO}-$ or a single bond,

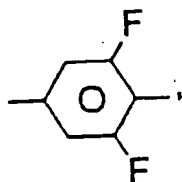


are each, independently of one another,



or

or

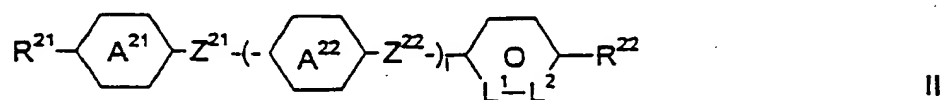


X is F, ~~OCF₂H~~ or OCF₃,

where, in the case where X = F ~~or OCF₂H~~, Y is F, and in the case where X = OCF₃, Y is H or F, and

n and m are each, independently of one another, 0 or 1;

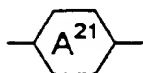
b) one or more dielectrically negative compound(s) of the formula II



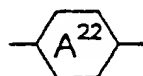
in which

R²¹ and R²² are each, independently of one another, as defined for R¹ under the formula I,

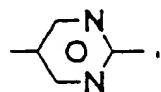
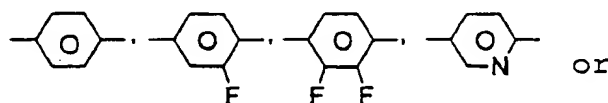
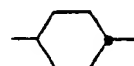
Z²¹ and Z²² are each, independently of one another, as defined for Z¹¹ above under the formula I,



and



are each, independently of one another,

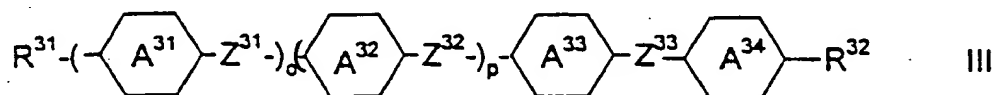


L¹ and L² are both C-F or one of the two is N and the other is C-F, and

l is 0 or 1;

and optionally

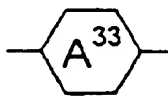
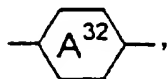
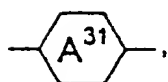
c) one or more dielectrically neutral compound(s) of the formula III



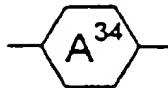
in which

R^{31} and R^{32} are each, independently of one another, as defined for R^1 above under the formula I, and

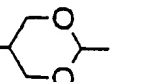
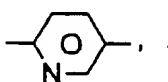
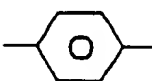
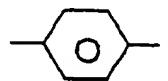
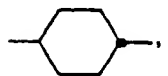
Z^{31} , Z^{32} and Z^{33} are each, independently of one another, $-CH_2CH_2-$, $-CH_2O-$, $-OCH_2-$, $-CF_2O-$, $-OCF_2-$, $-COO-$ or a single bond, and, additionally, one of Z^{31} , Z^{32} and Z^{33} may also be $-CF_2CF_2-$,



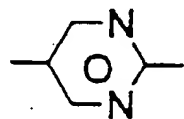
and



are each, independently of one another,



or

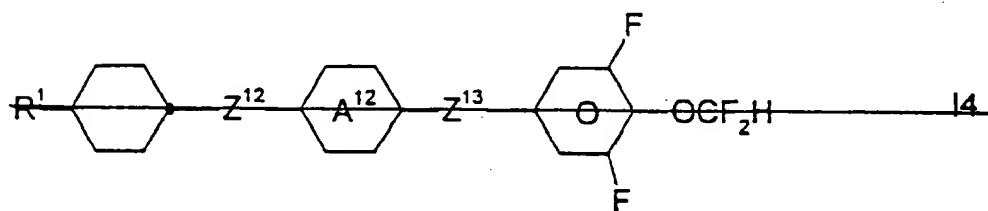
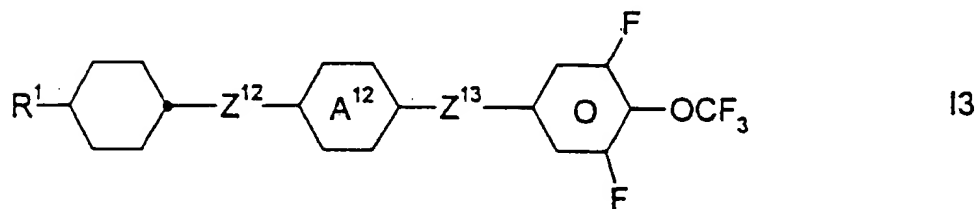
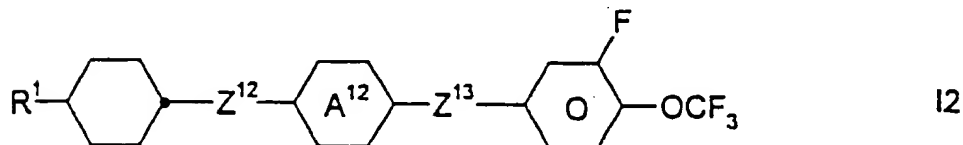
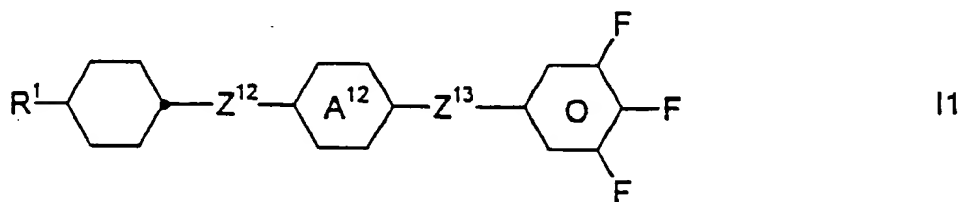


and

o and p, independently of one another, are 0 or 1,

wherein the medium has a positive dielectric anisotropy and a birefringence, Δn , of less than or equal to 0.11.

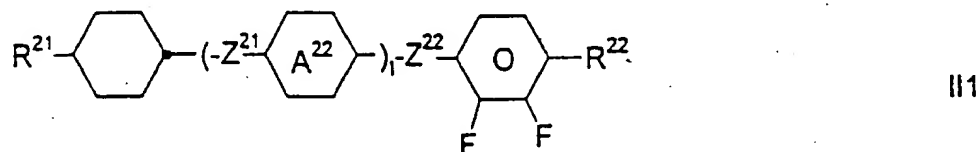
12. (Amended) The liquid-crystal medium of claim 11 which comprises one or more compounds selected from the group of compounds of the formulae II to I4:



in which R^1 , Z^{12} , Z^{13} and are each as

defined for formula I in Claim 11.

20. (Amended) The liquid-crystal medium of Claim 12, which comprises one or more compounds of the formula III

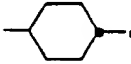


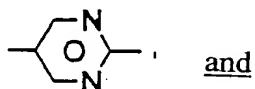
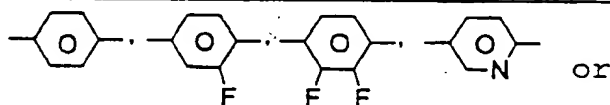
in which R^{21} , R^{22} , Z^{21} , Z^{22} , A^{22} and l are as defined in Claim 1 under the formula II.

R^{21} and R^{22} are each, independently of one another, alkyl or alkoxy having 1 to 7 carbon atoms, alkoxyalkyl, alkenyl or alkenyloxy having 2 to 7 carbon atoms,

Z^{21} and Z^{22} are each, independently of one another,

$-\text{CH}_2-$, $-\text{CH}=\text{CH}-$, $-\text{C}\equiv\text{C}-$, $-\text{COO}-$ or a single bond,

A^{22} are each, independently of one another, is 



l is 0 or 1.